

**ANNUAL REPORT
FOR THE MUNICIPALITY OF RESOLUTE BAY**

YEAR BEING REPORTED: 2023

The following information is compiled pursuant to the requirements of Part B, Item 1 of Water Licence (3BM-RES2025) issued to the Hamlet of Resolute Bay.

- i)- iii) tabular summaries of all data generated under the “Monitoring Program”; monthly and annual quantities in cubic metres of freshwater obtained from all sources; monthly and annual quantities in cubic metres of each and all wastes discharged;

Attached are results for Monitoring station RES-1 and 1571-5.

Month Reported	Quantity of Water Obtained from all sources	Quantity of Sewage Waste Discharged
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	N/A	N/A
September	N/A	N/A
October	N/A	N/A
November	N/A	N/A
December	N/A	N/A
ANNUAL TOTAL	N/A	N/A

Please indicate volumes in cubic metres - 1 cubic meter equals 1000 litres

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- iv. a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;

No modification and /or major maintenance work was carried out this reporting period. The existing facility is being used until a new facility is constructed.

- v. a list of unauthorized discharges and summary of follow-up action taken;

There was no unauthorized discharges reported in reporting year 2023.

- vi. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;

No abandonment and restoration work were carried out during this reporting period.

- vii. a summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;

Resolute Bay is one of the Municipalities included in the current solid waste facility project. The planning phase study will be completed during the 2024/25 fiscal year.

- viii. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and

CGS will work with Municipality on CIRNAC inspection report identified issues addressing solid waste.

- ix. updates or revisions to the approved Operation and Maintenance Plans.

No revisions or updates on approved O&Ms.

x. ADDITIONAL INFORMATION THAT THE LICENSEE DEEMS USEFUL:

The solid waste facility planning study will be presented to the Hamlet Council. Upon approval, the detailed design phase will be initiated and an amendment to the water licence will be submitted.

xi. FOLLOW-UP REGARDING INSPECTION/COMPLIANCE CONCERNS:

No CIRNAC Inspection in the year 2023.

Appendix A: Certificate of Analysis

Appendix B: Hazardous Materials Spill Database, Resolute Bay 2023

Appendix C: CIRNAC Inspection Report

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FOR THE MUNICIPALITY OF RESOLUTE BAY

Appendix A



CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: -

REPORT No: 23-023389 - Rev. 0

Report To:

ATCO Frontec Ltd - Resolute Bay
PO Box 88
Hamlet of Resolute Bay
, NU X0A 0V0

CADUCEON Environmental Laboratories

2378 Holly Lane Ottawa,
ON K1V 7P1

Attention: Ian Dudla

DATE RECEIVED: 2023-Sep-05
DATE REPORTED: 2023-Sep-18
SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:
P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	1	OTTAWA	VKASYAN	2023-Sep-06	A-IC-01	SM 4110B
BOD5 (Liquid)	1	KINGSTON	JWOLFE	2023-Sep-07	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	1	OTTAWA	SBOUDREAU	2023-Sep-06	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	1	OTTAWA	HALIPDA	2023-Sep-05	FC-001	SM 9222D
ICP/MS Total (Liquid)	1	OTTAWA	AOZKAYMAK	2023-Sep-12	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	1	OTTAWA	NHOGAN	2023-Sep-06	D-ICP-01	SM 3120B
Mercury (Liquid)	1	OTTAWA	TBENNETT	2023-Sep-06	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	1	KINGSTON	KDIBBITS	2023-Sep-12	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	1	KINGSTON	MLANE	2023-Sep-07	O&G-001	SM 5520
PHC F1 (Liquid)	1	RICHMOND_HILL	FLENA	2023-Sep-08	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	1	KINGSTON	STHOMPSON	2023-Sep-07	PHC-W-001	MECP E3421
Phenols (Liquid)	1	KINGSTON	JMACINNES	2023-Sep-14	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	1	KINGSTON	EASIEDU	2023-Sep-08	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	1	OTTAWA	VKASYAN	2023-Sep-06	C-OC-01	EPA 415.2
TP & TKN (Liquid)	1	KINGSTON	KDIBBITS	2023-Sep-14	TPTKN-001	MECP E3516.2
TSS (Liquid)	1	KINGSTON	AMANIYA	2023-Sep-13	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	1	RICHMOND_HILL	FLENA	2023-Sep-08	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)

F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)

F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)

F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit NC

= Not Calculated

Test methods may be modified from specified reference method unless indicated by an *Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.

If analyzed for F4 and F4G they are not to be summed

but the greater of the two numbers are to be used in

application to the CWS PHC

QC will be made available upon request.

Michelle Dubien

Data Specialist

Parameter	Client I.D.		RES-1
	Sample I.D.		23-023389-1
	Date Collected		2023-08-29
	Units	R.L.	-
Fecal Coliform	CFU/100mL	1	0
Alkalinity(CaCO ₃) to pH4.5	mg/L	5	174
pH @25°C	pH units	-	7.82
Conductivity @25°C	uS/cm	1	665
Chloride	mg/L	0.5	87.0
Nitrate (N)	mg/L	0.05	2.45
Nitrite (N)	mg/L	0.05	<0.05
Sulphate	mg/L	1	31
BOD ₅	mg/L	3	<3
Total Suspended Solids	mg/L	3	22
Phosphorus (Total)	mg/L	0.01	0.01
Ammonia (N)-Total (NH ₃ +NH ₄)	mg/L	0.05	<0.05
Total Organic Carbon	mg/L	0.2	1.4
Phenolics	mg/L	0.001	<0.001
Hardness (as CaCO ₃)	mg/L	-	232
Aluminum (Total)	mg/L	0.01	0.08
Cadmium (Total)	mg/L	0.005	<0.005
Calcium (Total)	mg/L	0.02	55.1
Chromium (Total)	mg/L	0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002



Michelle Dubien
Data Specialist

		Client I.D.	RES-1
		Sample I.D.	23-023389-1
		Date Collected	2023-08-29
Parameter	Units	R.L.	-
Iron (Total)	mg/L	0.005	0.122
Lead (Total)	mg/L	0.02	<0.02
Magnesium (Total)	mg/L	0.02	23.0
Manganese (Total)	mg/L	0.001	0.011
Nickel (Total)	mg/L	0.01	<0.01
Potassium (Total)	mg/L	0.1	2.9
Zinc (Total)	mg/L	0.005	0.007
Arsenic (Total)	mg/L	0.0001	<0.0003
Mercury	mg/L	0.00002	<0.00002

Michelle Dubien
Data Specialist

		Client I.D.	RES-1
		Sample I.D.	23-023389-1
		Date Collected	2023-08-29
Parameter	Units	R.L.	-
Benzene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Xylene, m,p-	µg/L	1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5
PHC F1 (C6-C10)	µg/L	25	<25
PHC F2 (>C10-C16)	µg/L	50	<50
PHC F3 (>C16-C34)	µg/L	400	<400
PHC F4 (>C34-C50)	µg/L	400	<400
Oil & Grease (Total)	mg/L	1.0	7.6

Michelle Dubien
Data Specialist

Client I.D.

REPORT No: 23-023389 - Rev. 0

RES-1

23-023389-1

Sample I.D.

Date Collected

2023-08-29

Parameter	Units	R.L.	
Acenaphthene	µg/L	0.05	<0.05
Acenaphthylene	µg/L	0.05	<0.05
Anthracene	µg/L	0.05	<0.05
Benzo[a]anthracene	µg/L	0.05	<0.05
Benzo(a)pyrene	µg/L	0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05	<0.05
Chrysene	µg/L	0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05	<0.05
Fluoranthene	µg/L	0.05	<0.05
Fluorene	µg/L	0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1	<1
Methylnaphthalene,2-	µg/L	0.05	<0.05
Naphthalene	µg/L	0.05	<0.05
Phenanthrene	µg/L	0.05	<0.05
Pyrene	µg/L	0.05	<0.05
Total PAH	µg/L	0.1	<0.1

Bacteria passed holding time.



Michelle Dubien
Data Specialist



CERTIFICATE OF ANALYSIS

Final Report

C.O.C.: G 110791

REPORT No: 23-019267 - Rev. 0

Report To:

ATCO Frontec Ltd
PO Box 88
Hamlet of Resolute Bay
, NU X0A 0V0

CADUCEON Environmental Laboratories

2378 Holly Lane
Ottawa, ON K1V 7P1

Attention: Matthew Payne

DATE RECEIVED: 2023-Jul-31
DATE REPORTED: 2023-Aug-09
SAMPLE MATRIX: Waste Water

CUSTOMER PROJECT:
P.O. NUMBER:

Analyses	Qty	Site Analyzed	Authorized	Date Analyzed	Lab Method	Reference Method
Anions (Liquid)	2	OTTAWA	PCURIEL	2023-Jul-31	A-IC-01	SM 4110B
BOD5 (Liquid)	2	KINGSTON	MDUBIEN	2023-Aug-03	BOD-001	SM 5210B
Cond/pH/Alk Auto (Liquid)	2	OTTAWA	SBOUDREAU	2023-Jul-31	COND-02/PH-02/A LK-02	SM 2510B/4500H/ 2320B
Fecal Coliforms (Liquid)	2	OTTAWA	HALIPDA	2023-Jul-31	FC-001	SM 9222D
ICP/MS Total (Liquid)	2	OTTAWA	TPRICE	2023-Aug-01	D-ICPMS-01	EPA 6020
ICP/OES Total (Liquid)	2	OTTAWA	NHOGAN	2023-Aug-02	D-ICP-01	SM 3120B
Mercury (Liquid)	2	OTTAWA	TBENNETT	2023-Aug-03	D-HG-02	SM 3112B
Ammonia & o-Phosphate (Liquid)	2	KINGSTON	AMANIYA	2023-Aug-04	NH3-001	SM 4500NH3
Oil & Grease (Liquid)	2	KINGSTON	TMCBRYDE	2023-Aug-01	O&G-001	SM 5520
PHC F1 (Liquid)	2	RICHMOND_HILL	FLENA	2023-Aug-03	C-VPHW-01	MECP E3421
PHC F2-4 (Liquid)	2	KINGSTON	STHOMPSON	2023-Aug-03	PHC-W-001	MECP E3421
Phenols (Liquid)	2	KINGSTON	KWELCH	2023-Aug-01	PHEN-01	MECP E3179
SVOC - Semi-Volatiles (Liquid)	2	KINGSTON	PRANA	2023-Aug-05	NAB-W-001	EPA 8270D
Total Organic Carbon (TOC)	2	OTTAWA	VKASYAN	2023-Jul-31	C-OC-01	EPA 415.2
TP & TKN (Liquid)	2	KINGSTON	KDIBBITS	2023-Aug-03	TPTKN-001	MECP E3516.2
TSS (Liquid)	2	KINGSTON	AMANIYA	2023-Aug-03	TSS-001	SM 2540D
VOC-Volatiles Full (Water)	2	RICHMOND_HILL	FLENA	2023-Aug-03	C-VOC-02	EPA 8260

µg/g = micrograms per gram (parts per million) and is equal to mg/Kg

F1 C6-C10 hydrocarbons in µg/g, (F1-btex if requested)

F2 C10-C16 hydrocarbons in µg/g, (F2-naph if requested)

F3 C16-C34 hydrocarbons in µg/g, (F3-pah if requested)

F4 C34-C50 hydrocarbons in µg/g

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

Any deviations from the method are noted and reported for any particular sample.

nC6 and nC10 response factor is within 30% of response factor for toluene:

nC10, nC16 and nC34 response factors within 10% of each other:

C50 response factors within 70% of nC10+nC16+nC34 average:

Linearity is within 15%:

All results expressed on a dry weight basis.

Unless otherwise noted all chromatograms returned to baseline by the retention time of nC50.

R.L. = Reporting Limit

NC = Not Calculated

Test methods may be modified from specified reference method unless indicated by an *

Unless otherwise noted all extraction, analysis, QC requirements and limits for holding time were met.

If analyzed for F4 and F4G they are not to be summed but the greater of the two numbers are to be used in application to the CWS PHC

QC will be made available upon request

Michelle Dubien Laboratory
Manager

Parameter	Client I.D.		Res-2	1571-5
	Sample I.D.		23-019267-1	23-019267-2
	Date Collected		2023-07-29	2023-07-29
	Units	R.L.	-	-
Fecal Coliform	CFU/100mL	1	0	49
Alkalinity(CaCO3) to pH4.5	mg/L	5	115	89
pH @25°C	pH units	-	7.93	8.25
Conductivity @25°C	uS/cm	1	279	609
Chloride	mg/L	0.5	23.5	91.5
Nitrate (N)	mg/L	0.05	<0.05	0.68
Nitrite (N)	mg/L	0.05	<0.05	<0.05
Sulphate	mg/L	1	4	84
BOD5	mg/L	3	<3	<3
Total Suspended Solids	mg/L	3	<3	<3
Phosphorus (Total)	mg/L	0.01	0.02	0.04
Ammonia (N)-Total (NH3+NH4)	mg/L	0.05	<0.05	0.05
Total Organic Carbon	mg/L	0.2	17.9	5.4
Phenolics	mg/L	0.001	<0.001	<0.001
Aluminum (Total)	mg/L	0.01	0.02	0.04
Cadmium (Total)	mg/L	0.005	<0.005	<0.005
Calcium (Total)	mg/L	0.02	25.1	53.3
Chromium (Total)	mg/L	0.002	<0.002	<0.002
Cobalt (Total)	mg/L	0.005	<0.005	<0.005
Copper (Total)	mg/L	0.002	<0.002	0.002
Iron (Total)	mg/L	0.005	0.053	0.054



Michelle Dubien Laboratory
Manager

			Client I.D.	Res-2	1571-5
			Sample I.D.	23-019267-1	23-019267-2
			Date Collected	2023-07-29	2023-07-29
Parameter	Units	R.L.		-	-
Lead (Total)	mg/L	0.02		<0.02	<0.02
Magnesium (Total)	mg/L	0.02		9.80	13.3
Manganese (Total)	mg/L	0.001		0.003	0.005
Nickel (Total)	mg/L	0.01		<0.01	<0.01
Potassium (Total)	mg/L	0.1		0.5	4.0
Zinc (Total)	mg/L	0.005		0.006	0.009
Arsenic (Total)	mg/L	0.0001		0.0003	0.0006
Mercury	mg/L	0.00002		<0.00002	<0.00002



**Michelle Dubien Laboratory
Manager**

Client I.D.			Res-2	1571-5
Sample I.D.			23-019267-1	23-019267-2
Date Collected			2023-07-29	2023-07-29
Parameter	Units	R.L.	-	-
Benzene	µg/L	0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5
Xylene, m,p-	µg/L	1	<1	<1
Xylene, m,p,o-	µg/L	1.1	<1.1	<1.1
Xylene, o-	µg/L	0.5	<0.5	<0.5
PHC F1 (C6-C10)	µg/L	25	<25	<25
PHC F2 (>C10-C16)	µg/L	50	<50	<50
PHC F3 (>C16-C34)	µg/L	400	<400	<400
PHC F4 (>C34-C50)	µg/L	400	<400	<400
Oil & Grease (Total)	mg/L	1.0	<1.0	<1.0



**Michelle Dubien Laboratory
Manager**

ANNUAL REPORT FOR THE MUNICIPALITY OF RESOLUTE BAY

			Client I.D.	Res-2	1571-5
			Sample I.D.	23-019267-1	23-019267-2
			Date Collected	2023-07-29	2023-07-29
Parameter	Units	R.L.		-	-
Acenaphthene	µg/L	0.05		<0.05	<0.05
Acenaphthylene	µg/L	0.05		<0.05	<0.05
Anthracene	µg/L	0.05		<0.05	<0.05
Benzo[a]anthracene	µg/L	0.05		<0.05	<0.06
Benzo(a)pyrene	µg/L	0.01		<0.01	<0.01
Benzo(b)fluoranthene	µg/L	0.05		<0.05	<0.05
Benzo(b+k)fluoranthene	µg/L	0.1		<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	0.05		<0.05	<0.05
Benzo(k)fluoranthene	µg/L	0.05		<0.05	<0.05
Chrysene	µg/L	0.05		<0.05	<0.05
Dibenzo(a,h)anthracene	µg/L	0.05		<0.05	<0.05
Fluoranthene	µg/L	0.05		<0.05	<0.05
Fluorene	µg/L	0.05		<0.05	<0.05
Indeno(1,2,3,-cd)Pyrene	µg/L	0.05		<0.05	<0.05
Methylnaphthalene,1-	µg/L	0.05		<0.05	<0.05
Methylnaphthalene,2-(1-)	µg/L	1		<1	<1
Methylnaphthalene,2-	µg/L	0.05		<0.05	<0.05
Naphthalene	µg/L	0.05		<0.05	<0.06
Phenanthrene	µg/L	0.05		<0.05	<0.05
Pyrene	µg/L	0.05		<0.05	<0.05
Total PAH	µg/L	0.1		<0.1	<0.1



[illegible]

**ANNUAL REPORT
FOR THE MUNICIPALITY OF RESOLUTE BAY**

Appendix B

No spills reported at the solid waste site in the year 2023

**ANNUAL REPORT
FOR THE MUNICIPALITY OF RESOLUTE BAY**

Appendix C

No CIRNAC Inspection in the year 2023